

REDUCTION OF HAZARDOUS WASTE LEGISLATIVE SUMMARY: 2003 REPORT

The South Carolina Department of Health and Environmental Control (Department) has general authority to conduct studies, investigations, and research with regard to matters related to hazardous waste generation and disposal. Based on this general authority, the Department has prepared this report to describe the current state of affairs with respect to hazardous waste generation and disposal, and in particular, with regard to changes which have occurred in the past year (2003).

WASTE GENERATION AND DISPOSAL

Waste minimization is a policy mandated by the U.S. Congress in the 1984 Hazardous and Solid Waste Amendments to the Resource Conservation and Recovery Act (RCRA). This policy is reflected in the South Carolina Hazardous Waste Management Regulations, as amended. The desire to minimize liability and waste management cost has raised the general interest in waste minimization and waste elimination. Despite the high cost of landfill disposal prices, the use of landfills in the U.S. for managing hazardous waste continues. While there have been many technical advances made toward the reduction of hazardous waste generation, several factors affect the quantity of hazardous waste landfilled. These factors include the price of landfill services, competition in the landfill industry, landfill capacity, regulations, extent of recycling, concern for potential liability issues related to hazardous waste disposal into landfills, and the quantities, new types and composition of wastes.

The Department amended Regulation 61-79 to adopt federal amendments through June 30, 2002. The amendment update is the responsibility of the Department in order to maintain compliance with the various federal amendments to the Resource Conservation and Recovery Act regulations. The amendments became final on June 27, 2003.

The most recent amendments include: a clarifying revision to the Mixture and Derived-From Rules; new listings for three inorganic chemical manufacturing wastes including additional toxic constituents and treatment standards for the wastes; amendments to the Corrective Action Management Unit rule to facilitate cleanup; and deletion of regulatory language vacated by two federal court actions for some mineral processing secondary materials and the application of the Toxicity Characteristic Leaching Procedure to manufactured gas plant wastes.

In addition, amendments were made to the Hazardous Air Pollutant Standards for Combustors. In September 2000, the Department began the adoption process for the Hazardous Air Pollutant Standards for Combustors promulgated by EPA. However, a federal appeals court struck down the EPA standards on July 24, 2001. At the September 13, 2001 Department Board meeting, staff recommended that those portions of the proposed federal compliance standards regarding combustion not be adopted. The Department Board concurred. On February 13, 2002, EPA developed interim standards and will develop final standards by June 14, 2005. The

Department adopted the interim standards and those portions of the combustor standards that had not been vacated. Minor errors were corrected to achieve conformity with federal regulations. These rules and other amendments were published in the Federal Register between September 30, 1999, and June 30, 2002.

The only existing hazardous waste landfill in South Carolina is currently inactive and has commenced certain closure activities toward final closure of the facility. The Department initiated a Permit modification related to a revised Closure and Post Closure Plan for the entire facility. The revised Closure/Post-Closure Plan was initially received on February 28, 2002. A final revision dated July 1, 2002 was offered for public comment on August 12, 2002 for a period of 45 days. The Department received comments on the proposed Permit modification decision. Currently, these comments are being evaluated.

Safety-Kleen filed for bankruptcy protection at the Federal Court in Delaware on June 13, 2000. In response to the Department's claims during the bankruptcy proceedings, a Settlement Agreement was reached between Safety-Kleen and the Department in order to close and continue post closure care and maintenance of the facility. On August 1, 2003, the U.S. Bankruptcy Court approved the Settlement Agreement and Stipulated Order entered into by the Department, Safety-Kleen Corporation and Safety-Kleen (Pinewood), Inc., which authorized the establishment of a Site Trust to assume ownership and operations of Safety-Kleen Pinewood hazardous waste disposal site.

The Settlement Agreement and Stipulated Order provided that upon Safety-Kleen Corporation's emergence from bankruptcy, the Site would be transferred to a Trustee approved by the Department, and Safety-Kleen would make payments to the Trust to cover the cost of closure and post-closure, and potential environmental impairment at the Site. On December 24, 2003, Safety-Kleen paid approximately \$11.1 million into the Site Trust fund to cover closure costs at the Site; purchased a fully paid annuity that will pay out approximately \$145 million from 2005 to 2105 to cover 100 years of post-closure care and paid an additional \$14.5 million into an Environmental Impairment Trust Fund which will have a total of approximately \$34 million. Upon completion of funding requirements, financial and regulatory responsibility for the Pinewood Hazardous Waste Disposal site transferred to the site Trustees. Kestrel Horizons, LLC, has been approved to serve as Trustee. Kestrel Horizons, located in Greenville, S.C., is an environmental engineering and scientific consulting firm that specializes in site remediation and construction management; risk and liability management; and management systems services.

Additional information on hazardous waste activities in South Carolina can be obtained from the Department's Compliance and Enforcement Division in the Bureau of Land and Waste Management. This information includes the activities of industries in the State, which regularly generate over 220 pounds (100kg) of hazardous waste per month and pertains to waste generation, treatment, storage, and disposal.

WASTE MINIMIZATION

“Waste Minimization” is the elimination, by source reduction, of any waste stream, and the productive use of any waste that cannot be source reduced. Hazardous waste minimization focuses on source reduction and recycling activities that reduce either the volume or the toxicity of the hazardous waste generated. Waste minimization approaches and techniques in South Carolina include the following:

- Inventory Management and Improved Operations.
- Modification of Equipment.
- Production Process Changes.
- Input Material Substitution.
- Recycling and Reuse.

Waste minimization, recycling, reuse, and waste reduction are performed primarily for three reasons: (1) the economic incentives associated with minimizing waste; (2) reduced cost associated with environmental compliance, and (3) reduced contingent environmental liability. As environmental regulations become more stringent, waste management expenditures have increased. The generation of waste is at the expense of resource efficiency.

Economic incentives for waste minimization are the result of several factors including: (1) decreased material efficiency, every pound of purchased material lost to waste is one less pound available for revenue-producing product; (2) lower worker efficiency, every man-hour spent on managing a waste stream is one less man-hour available to create a return on investment, and (3) higher regulatory compliance cost, rising costs for transportation, treatment and disposal of wastes, coupled with increased exposure to liability and remediation costs draining resources otherwise available to generate revenue. Because of decreasing efficiencies and increasing compliance costs, waste minimization has become increasingly attractive economically.

Other factors that have the effect of minimizing waste, recalling that the definition includes a reduction in the toxicity of a given waste stream, relate to the elimination of certain chemicals as required by governmental action. For example, hazardous solvents, which are linked to a depletion of atmospheric ozone, are being phased out as a result of the United States' commitment to the Montreal Protocol on Substances that Deplete the Ozone Layer and recent Clean Air Act amendments.

Companies are often searching for non-hazardous substitutes for solvents which typically generate hazardous wastes. For example, companies often use hazardous solvents to clean metal parts before painting. Companies that can find non-hazardous cleaning materials that are adequate substitutes will have waste streams from those specific unit operations that are likely to be less toxic and probably non-hazardous.

Finding such substitutes is often site specific following a series of detailed pilot tests to demonstrate that the substitute can meet the same cleaning specifications. There are currently no known substitutes which have a broad range of cleaning applications, in comparison to currently used hazardous solvents.

Technical Assistance. Act 196 (1989) provided resources for the Department to establish a technical assistance program for businesses and industry. This program is implemented by the Center for Waste Minimization (Center) and provides free, non-regulatory assistance to help companies identify opportunities for waste reduction and recycling. The Center is also South Carolina's clearinghouse for waste minimization information.

Current activities at the Center for Waste Minimization include forming partnerships with the following groups:

- Other technical assistance providers to maximize assistance delivery efficiency;
- Department regulators to encourage pollution prevention and waste minimization as a way to comply with regulations, reduce the risk to South Carolina's human health and environment, and maintain the non-regulatory nature of the Center's assistance.

Services include:

- Multimedia waste reduction assessments to existing facilities. These provide a basis for waste reduction recommendations for new facilities and expansions, as well as for existing facilities.
- Provide technical assistance in the form of case studies and "how-to" information on a wide variety of waste reduction subjects.
- Provide information about waste reduction through teleconferences and workshops.
- Provide solutions that are applicable to wastes generated across industry lines, such as rinsing. Rinsing operations are used in many industries, and the methods for reducing waste have been optimized in the metal-plating industry.
- "Selling" the concept of waste minimization to South Carolina industry.
- Developing a simple survey and set of data sheets to assist small companies to understand compliance priorities and recognize areas they may need to address. The survey and data sheets have been developed with the regulator's cooperation, but are non-regulatory and remain at the facility.

The Center is an important resource to companies in South Carolina, especially those which do not have the financial and technical resources to evaluate waste minimization options on their own.

The Center provides assistance in areas that address multimedia wastes. Over the last thirteen years, staff has responded to nearly 3500 individual requests for assistance, including almost 780 on-site assessments.

In addition to providing one-on-one technical assistance and teleconferences for industrial training, the Center provides waste minimization resource materials at no charge to businesses and industries in South Carolina.

Such resource materials include:

- Business Recycling Assistance Program (BRAP) News, a newsletter published quarterly in partnership with the Department's Office of Solid Waste Reduction and Recycling, and with SC DOC Recycling Market Development Advisory Council, and distributed to over 3000 addresses.
- THE INDEX OF WASTE MINIMIZATION RESOURCES, a compilation of recyclers, vendors, services, and substitute materials available to help minimize waste generation and/or productively use the waste that cannot be eliminated, currently in its ninth yearly printing.
- TO WASTE OR NOT TO WASTE, a nine (9) minute training video addressing the need for companies to have a waste minimization program and for production employees to support these programs.
- A set of seven (7) cartoon posters addressing the high cost of waste.
- Various EPA and Center publications describing successful waste minimization techniques for various industries.
- Compliance Assistance Data Sheets, a brief summary of the regulations approved by the Bureaus of Land and Waste Management, Water, and Air Quality.

HAZARDOUS WASTE MANAGEMENT RESEARCH FUND

The Hazardous Waste Management Research Fund (HWMRF) was established as an extension of the South Carolina Universities Research and Education Foundation (SCUREF) by 1989 amendments to the South Carolina Hazardous Waste Act. The General Assembly established the HWMRF to "...ensure the availability of funds for the conduct of research related to waste minimization and reduction and for the development of more effective and efficient methods of conducting governmental response actions at uncontrolled hazardous waste sites." The Fund was directed to "...establish a comprehensive research program with a primary emphasis on improving current hazardous waste management practices including, but not limited to, waste minimization and reduction and the development of more effective and efficient methods of conducting governmental response actions at abandoned or uncontrolled hazardous waste sites." The Fund capitalizes on faculty resources at Clemson University, the University of South Carolina, the Medical University of

South Carolina and South Carolina State University to provide research and direct assistance on issues related to waste minimization.

A. Technical Assistance. In 2003, the Fund supported the following technical assistance project:

The Non-point Education for Municipal Officials Project (NEMO). NEMO is a statewide program designed to educate local officials about non-point source pollution, and the relationship between water quality and land use. It was a three-year program that focused educational efforts in four priority watersheds in South Carolina - the Pee Dee, the Catawba, the Saluda, and the Seneca/Lake Keowee watersheds. The NEMO project staff coordinated educational workshops in counties within each watershed, and provided follow up technical assistance activities to help communities develop strategies to address water quality problems associated with non-point source pollution. The NEMO program was concluded in July 2003 with the delivery of workshops to several counties within the Lower Saluda watershed. In the past three years the NEMO program has been delivered to over 20 counties located in the targeted watersheds, reaching over 200 local decision makers. The Sea Grant Extension Program (the lead agency of the NEMO program) will provide a final analysis summarizing the outcomes of the three-year effort. The findings of this report will be available in early 2004.

B. Education. The Fund's educational outreach efforts include an annual conference and a quarterly publication that reaches the regulated community and the environmental policy making communities in the state. The 2003 conference, co-sponsored with Santee Cooper, Westvaco Corporation, National and South Carolina Wildlife Federations, International Paper-Eastover Mill, the South Carolina Chapter of the Sierra Club, Springs Industry, the South Carolina Department of Natural Resources, and the South Carolina Department of Health and Environmental Control, was held in Myrtle Beach in October 2003.

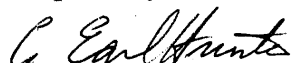
The Governor's Pollution Prevention Award. These awards are presented each year by the Fund. In 2003, Dayco Products, LLC received the award for medium business or industrial facility and Griffin Thermal Products and Interlake Material Handling received honorable mentions. The large business award was given to BMW Manufacturing Corp. Vordian, a Division of Eastman Chemical Company and 3M Company received honorable mentions in this category. Under the Government Agency category the following awards were presented: State Government Winner was South Carolina Department of Health and Environmental Control; Federal Government Winner was Naval Weapons Station Charleston; Local Government Winner was Keep America Beautiful of Anderson County. All faculty researchers supported by the Fund reported on the results of their work during this conference.

E₂SC: Environmental Excellence in South Carolina. Rounding out its tenth year of publication, E₂SC continued to serve as the Fund's primary educational outreach effort in 2003, providing a relevant combination of articles to help readers appreciate and contribute to environmental excellence in South Carolina. Reaching the State's regulated community and beyond, the magazine featured articles focused on themes of particular interest to its readers: improving and maintaining water quality, and the effective management of chemicals and materials. The commissioner of South

Carolina's Department of Health and Environmental Control contributes a column to every issue of *E₂SC*, underscoring the Department's continuing support of the magazine's mission. Environmental managers and specialists from industry and from the public sector offer their thoughts and advice on environmental excellence, and environmental organizations use *E₂SC* as a forum to express their views on topics of interest to industry. Moreover, the magazine is closely associated with the South Carolina Environmental Excellence Program, thereby strengthening its ties to the regulated, the regulators, and the environmental community. *E₂SC*'s overall effect is to encourage environmental excellence—in the broadest sense of the term—in South Carolina.

In summary, waste minimization continues to reduce waste generation through source reduction and recycling activities. The Department shall continue to work diligently with South Carolina businesses and industries to identify ways to minimize the amount of material that requires landfilling. Alternative methods of hazardous waste management, other than landfilling, shall continue to be a priority of the Department while implementing the various hazardous waste management programs within the State.

Respectfully Submitted,

A handwritten signature in cursive script, appearing to read "C. Earl Hunter".

C. Earl Hunter, Commissioner
South Carolina Department of Health and Environmental Control
February 2004